

Economic Impact of Naval Forward Presence:
Benefits, Linkages and Future Prospects as Modified by Trends in Globalization

Executive Summary

The proposed research will extend and frame for QDR 2001 our research on the linkages between Naval Forward Presence and economic security/peacetime interests brought about by rapid technological change and accelerated globalization. Because the NDU's major study on Globalization will not be released in time to incorporate into the current study, our efforts have focused on further developing and applying new methodologies to the measurement of the economic benefits associated with Naval forward presence/crisis response. Several new case studies have been examined and, as in the previous study, significant potential economic benefits for the United States' economy identified and quantified.

In extending and strengthening the previous study, we have applied several relatively new statistical tests in an effort to identify linkages between the movements of forward deployed naval forces and economic variables such as oil prices, exchange rates and equity markets. The results suggest statistically valid and positive links exist from crisis response to these markets and ultimately the US economy. While encouraging, the likelihood of similar benefits accruing in the future will hinge critically on the manner in which the global system evolves. With this in mind, the proposed research will integrate our findings with the relevant areas of the rapidly expanding literature on globalization for the purpose of developing a framework for identifying and assessing the factors likely to affect the future economic consequences of Naval forward presence/crisis response. In turn, this framework will be structured for use in the 2001 QDR.

Background

In 1997 the Naval Postgraduate School was tasked by N8-N3/5 to assess whether it was possible to quantify the economic benefits derived from Naval Forward Presence. This analysis focused on the links between naval crisis response and oil future prices. Several major findings emerged from this research.

- Most important, it is possible to develop procedures to measure some of the economic impacts of Naval Forward Presence.
- Economic impacts can be measures in terms of dollar cost savings and or additional dollar resources available to the economy.
- In some cases these economic impacts can be significant. They may also persist over a fairly long period and across the economies of a large number of US allies.

- While these initial estimates of the economic benefits associated with naval Forward Presence are high, it is apparent they underestimate the complete benefits associated with crisis response.

The current study was tasked by N81 to extend the work of the first study and then develop productive ways to shape ("frame") the main findings with those found by the NDU/UnderSECNAV study on globalization. As it turns out, the NDU final report will not be available until the fall of 2000. Hence work has focused on strengthening and extending that of the first study. While widely circulated and discussed that study had several shortcomings:

- Emphasis was almost exclusively on the Gulf, making generalizations difficult for other parts of the world. Associated with this, movements in future oil prices were used exclusively to measure the economic benefits of forward deployed forces.
- Linkages between oil markets and the movement of forward deployed forces remained somewhat antidotal. Linkages were established by essentially ruling out any other explanation for the shifts in the price of oil.

To overcome these limitations, the current study has:

- Examined other parts of the world (Taiwan Straits, Libya and Kosovo) as well as adding two additional cases in the Gulf (Desert Strike and Desert Fox). In addition to oil, exchange rates (mainly the Yen and Deutsch Mark) and share markets (mainly the Hang Sing and the NY Stock Exchange) have been examined for their links to naval crisis response.
- Developed a more objective and scientific link between naval forward presence and these markets through the use of several relatively new statistical techniques, error correction and, event analysis.

While still preliminary, our current research suggests that:

- The economic benefits associated with crisis response may be fairly widespread, occurring in non-oil as well as oil situations.
- Movements in naval forces during crisis periods often impact on a variety of markets in several statistically significant ways.
- These movements often shock markets, initiating a follow-on equilibration process that is ultimately beneficial to the United States economy.
- The linkages between crisis response and markets tends to be complex with the initial impact spreading to related markets i.e., oil prices to exchange rates to share markets.

- The ultimate impact on the United States economy as well as that of our allies is dependent on the strength and stability of these market linkages.

Proposed Research

The generalizations noted above can be the basis of assessing future economic impacts associated with naval forward presence/crisis response. Still, with each finding several other questions arise.

Why are, say the benefits associated with operation Desert Fox higher than those accruing from Desert Strike? Why are the benefits from the Taiwan Strait case rather high, despite the fact that no direct links to oil exist? Would they have been higher/lower under different circumstances? Which circumstances? Can we predict in advance the general magnitude of economic benefits accruing from similar operations? What methods are best to do this? What factors need to be taken into account? How might these change with the evolution of Globalization and increased economic integration? Will these changes in the international economic environment likely strengthen or weaken the positive economic impacts associated with Naval forward presence/crisis response. Ultimately, what might the US have done before and concurrently to enhance these benefits?

The research proposed will be focused on providing a framework capable of answering these and related questions. Specifically it will:

Develop an integrated framework for assessing the consequences of globalization on the market forces associated with naval forward presence/crisis response. This task will draw heavily on the rapidly expanding literature on globalization, integrating it with our quantitative findings on economic benefits. Here the key elements needed to predict the likely economic consequences stemming from crisis response will be identified.

An issue often associated with globalization is the likelihood that the forces associated with the "New Economy" may modify the economic consequences of forward deployed naval forces. The defining characteristic of the new economy viewpoint is a focus on increasing globalization and expanding information technology as the underlying causes of an evolving economy. Here globalization and computerization are not viewed merely as symptoms of other factors but as the driving forces that are fundamentally changing the economy. On the surface this is surely true—there is little debate that the world economy is becoming more consolidated in terms of both product and capital markets and that information technology is changing how business, people and markets interact.

The real questions examined in the proposed research are whether these changes are new in a meaningful sense and whether they are powerful enough to truly change how the economy works and thus the impacts of naval forward presence/crisis response. If so, the proposed research will assess the manner in which these changes are likely to occur, and the resulting consequences for the US economy.

Output Expected

The proposed research will culminate in a report detailing the main findings. A full set of briefing slides will also be provided as well as all documentation and backup materials.

Time and cost

The economic analysis section of the FY2000 research will take an elapsed time of four academic quarters to complete. Together with labor costs, and travel the analysis will require additional databases, software, and supplies for a total cost of approximately \$177, 778.61.

Personnel

Dr. Robert E. Looney	120.0	Days
Dr. David Schradly	90.0	Days

RESUMES OF THE INVESTIGATORS

Robert Looney

Professor of National Security Affairs

Dr. Looney joined the faculty of the Naval Postgraduate School in 1979. Prior to that, he was a macro-economist at Stanford Research Institute where he served as an economic advisor to the governments of Iran, Saudi Arabia and Mexico. His researched has focused on economic modeling, oil markets and resource issues in developing and transitional economies. He is the author of twenty books including: *Economic Policy Making in Mexico; The Economic Causes and Consequences of Defense Expenditures in the Middle East and South Asia; Economic Origins of the Iranian Revolution; the Political Economy of Latin American Defense Expenditures; and Economic Development in Saudi Arabia: Consequences of the Oil Price Decline*. He has published over two hundred professional papers including articles in OPEC Review, Resources Policy, Journal of Policy Modeling, Journal of Economic Modeling, Journal of Energy and Development, Iranian Studies, Mexican Studies, International Organization, Middle Easter Studies, Regional Studies and Contemporary South Asia. Dr. Looney is the Library of Congress, Handbook for Latin American Studies editor for the Mexican

economy. He is also a contributing editor of American Journal of Economics and Sociology, Political Crossroads, and Journal of Third World Studies.

David Schrady
Distinguished Professor of Operations Research

Dr. Schrady joined the faculty in the Department of Operations Research in 1965 and, during the period from 1966 to 1974, conducted research in the areas of in-service support logistics (inventory control, allowance list construction, and inventory record accuracy) and tactical analysis (influence of sensor errors on successful mission accomplishment). From 1974 through 1987, he served successively as chairman, Department of Operations Research and Administrative Sciences, Dean of the Division of Information and Policy Sciences, and Provost and Academic Dean of the Naval Postgraduate School. He was the president of the Military Operations Research Society (1978-79), the president of the Operations Research Society of America (1983-84), and is currently serving as the treasurer of the International Federation of Operational Research Societies. He has been a consultant to the BDM Corporation, Litton-Mellonics, the Decision Studies Group, the Naval Supply Systems Command, and the Center for Naval Analysis. He is the recipient of the Wanner Memorial Award of the Military Operations Research Society (1984), the Navy Superior Civilian Service Award (1987), the Goodeve Medal of the Operational Research Society (1992), and the Kimball Medal of the Operations Research Society of America (1994).